

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A fuel cell comprising at least one etch-processed, conductive, porous film ~~comprising~~ forming at least one electrode, wherein said film ~~comprises~~ is disposed adjacent to at least one dielectric layer and at least one conductive layer, ~~and~~ wherein said at least one conductive layer comprises at least one material selected from the group consisting of gold, aluminum, platinum, and a conductive organic material[.], and wherein said dielectric layer comprises silicon nitride.

2. (cancelled): ~~The fuel cell of claim 1 wherein said dielectric layer comprises silicon.~~

3. (cancelled) ~~The fuel cell of claim 2 wherein said dielectric layer comprises silicon nitride.~~

4. (currently amended): The fuel cell of claim [3] 1 wherein said dielectric layer comprises pores formed by reactive ion etching.

5. (original): The fuel cell of claim 1 further comprising at least one catalyst disposed on the conductive layer.

6. (original): The fuel cell of claim 5 wherein said at least one catalyst comprises platinum.

7. (original): The fuel cell of claim 5 wherein said at least one catalyst is deposited by an ink deposition process.

8. (original): The fuel cell of claim 1 further comprising at least one support substrate supporting said film.

9. (original): The fuel cell of claim 8 wherein said support substrate comprises at least one fuel flow path for providing fuel to said electrode.

10. (original): The fuel cell of claim 1 wherein said porous film comprises a plurality of pores perforating said film, wherein diameters of said pores are 0.18-1 microns.

11. (currently amended): The fuel cell of claim [10] 8 wherein said support substrate is etched.

12. (original): The fuel cell of claim 1 wherein said electrode comprises an etch and anodization processed, silicon-based, porous electrode.

13. (original): The fuel cell of claim 1 wherein said fuel cell is operable to produce electricity from hydrogen and oxygen.

14. (original): The fuel cell of claim 1 wherein said fuel cell is operable to produce hydrogen and oxygen from water.

15. (original): The fuel cell of claim 1 wherein said film is 1-20 microns in thickness.

16. (original): The fuel cell of claim 1 comprising a plurality of said electrodes arranged as a planar array.

17. (original): The fuel cell of claim 16 wherein said- a planar array of electrodes comprises comprising an interdigitated array of cathodes and anodes.

18. (original): The fuel cell of claim 17 wherein a surface area of each cathode is approximately four times larger than a surface area of each anode.

19. (original): A method of combinatorial experimentation comprising the steps of:
providing materials for making fuel cells wherein the materials comprise a silicon substrate;
making a plurality of fuel cells on the silicon substrate; and
testing the fuel cells.

20. (new): A fuel cell comprising at least one etch-processed, conductive, porous film forming at least one electrode, wherein said film is disposed adjacent to at least one etch-processed dielectric layer and at least one etch-processed conductive layer forming said electrode, wherein said at least one conductive layer comprises at least one material selected from the group consisting of gold, aluminum, platinum, and a conductive organic material, and wherein said porous film comprises a plurality of pores perforating said film, wherein diameters of said pores are 0.18-1 microns.

21. (new): A fuel cell comprising at least one etch-processed, conductive, porous film forming at least one electrode, wherein said film is disposed adjacent to at least one etch-processed dielectric layer and at least one etch-processed conductive layer forming said electrode, wherein said at least one conductive layer comprises at least one material selected from the group consisting of gold, aluminum, platinum, and a conductive organic material, and wherein said film is 1-20 microns in thickness.

22. (new): A fuel cell comprising:
at least one etch-processed, conductive, porous film forming at least one electrode, wherein said film is disposed adjacent to at least one etch-processed dielectric layer and at least one etch-processed conductive layer forming said electrode, and wherein said at least one conductive layer comprises at least one material selected from the group consisting of gold, aluminum, platinum, and a conductive organic material; and
a planar array of electrodes comprising an interdigitated array of cathodes and anodes.

23. (new): The fuel cell of claim 22 wherein a surface area of each cathode is approximately four times larger than a surface area of each anode.